



Alliance
for **S**equestration **T**raining, **O**utreach
Research & **E**ducation

Hilary Clement Olson
Institute for Geophysics
The University of Texas at Austin

RCSP Partnership Review Meeting
October 6, 2010



Part of the Gulf Coast Carbon Center

The University of Texas at Austin

Jackson School of Geosciences

Institute for Geophysics

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Bureau of Economic Geology

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Victoria Osborne

Sandia Technologies

Dan Collins

Phil Papadeas

Bill Kardos



Workforce and Public Understanding

Overarching Goal: To **create** a skilled **workforce** for the GCS industry and **foster** the **public understanding** required to advance the United States in its energy security and its leadership position with regard to climate change mitigation technology.



Four Primary Initiatives

Sequestration

- Initiative 1.** **T**raining (Workforce Training)
 - Initiative 2. **O**utreach (Public Outreach)
 - Initiative 3. **R**esearch and Technology Transfer
 - Initiative 4. **E**ducation (Workforce Pipeline)
-

Two Approaches

- Approach 1. Personal Interaction
- Approach 2. Virtual Interaction

Upcoming Activities: Training (Workforce Training)



Personal Interaction

- One-Day Workshops

Storage of CO₂ in Geologic Formations

- October 10, 2010 – Gulf Coast Association of Geological Societies (GCAGS) Annual Meeting, San Antonio, TX (CEU hrs awarded by UT)
- November 9, 2010 – Society of Petroleum Engineers (SPE), International Conference on CO₂, New Orleans, LA (CEU hrs awarded by SPE)



**SPE INTERNATIONAL CONFERENCE ON
CO₂ Capture, Storage,
and Utilization**

Recent Activities:


Training (Workforce Training)

Virtual Interaction

- Training Newsletter
 - September 15, 2010
 - Quarterly
 - Archived at www.storeco2now.com



STORE Training - Carbon Sequestration: Storage of CO₂ in Geologic Formations - October 10 in San Antonio



Dear Mary,

You are receiving this e-mail because you expressed interest in STORE Training events, participated in a STORE Training event or are associated with our funding, advisory and outreach partners and organizations (e.g., Department of Energy National Energy Technology Laboratory and their Regional Carbon Sequestration Partnerships, Gulf Coast Carbon Center at The University of Texas at Austin).


What's STORE Training?

Through workshops and short courses, our training efforts are helping to create a skilled workforce for the carbon capture and storage industry to advance the United States in its energy security and its leadership position with regard to climate change mitigation technology. Check out our [feature article](#) to find out when STORE will be offering an event in your area or at a professional society meeting of interest.

Our STORE Alliance is built on partnering with local professional societies and other organizations to host training events at lower cost to their members.

[Contact us!](#) you are interested in learning more about attending or hosting one of our training events.

October 10, San Antonio




Carbon Sequestration: Storage of CO₂ in Geologic Formations
One-day short course on CO₂ Sequestration in association with Gulf Coast Association of Geological Societies Annual Meeting (Oct. 10-12) in San Antonio, Texas

Click [here](#) for short course description.

Click [here](#) to register.

November 9, New Orleans



Storage of CO₂ in Geologic Formations
One-day short course on CO₂ Sequestration in association with SPE International Conference on CO₂ Capture, Storage and Utilization (Nov. 10-12), New Orleans, Louisiana

Click [here](#) for more information and to register.

Related Training Opportunities

Greenhouse Gas Accounting and Measurement in Industry

This class is designed to provide participants with the knowledge and skills needed to develop a GHG/ISO9001-level analysis of a project's effects on climate change, as well as potential effects of climate change on the project itself.

Northwest Environmental Training Center (A Program of Environmental Outreach and Stewardship (EOTS) Alliance)

LOCATION - Sacramento, CA
DATES - September 21-23, 2010

Click [here](#) for more information.

Industry Lecture Series
Technologies for Climate Change Mitigation
Wednesday, Nov 17, 2010
San Antonio, TX

HOSTED BY SOUTHWEST RESEARCH INSTITUTE (SWRI)

3rd Annual: Technologies for Climate Change Mitigation
Industry Lecture Series
Hosted by Southwest Research Institute (SWRI)

Guest speakers and organizations represented include:





- Michael Ming, President, Research Partnership to Secure Energy for America (RPSEA)
- One Equipter, Executive Vice President and Chief Sustainability Officer, CPS Energy
- Steve Bridgman, Vice President, Zachry Industrial Inc.
- John Thomas Litzynski, Division Director, Sequestration Division, U.S. DOE National Energy Technology Laboratory
- Skyonic
- Southeast Research Institute
- Electric Power Research Institute (EPRI)

Wednesday, November 17, 2010 - Southwest Research Institute - San Antonio, Texas

The event is free, but seating is limited. [Click here](#) for more information and to register.

Sincerely,
The STORE Alliance
www.StoreCO2Now.com

An Alliance at The University of Texas at Austin



Recent Activities:

Training (Workforce Training)

Virtual Interaction

- GCS Professional Profile
 - Katherine Romanak (background, photos, video) at www.storeco2now.com



STORE Training - Carbon Sequestration: Storage of CO₂ in Geologic Formations - October 10 in San Antonio

STORE sequestration training, outreach, research & education

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Katherine Romanak

View Edit Outline

STORE SPOTLIGHT

At STORE, the best and brightest come together to address the challenges presented by a new technology: Geologic Carbon Sequestration.

We'd like you to meet some of our outstanding team members:

ROMANAK



Click here to meet Katherine Romanak

Katherine Duncker Romanak - Research Associate, Bureau of Economic Geology - The University of Texas at Austin

Research Interests

Geochemistry and isotope systematics of carbon cycling in the vadose zone and in freshwater aquifers.

Soil-gas monitoring and surface gas flux measurements at CO₂ sequestration sites.


Microbial influences on carbon geochemistry in the shallow subsurface.

Fate and transport of organic contaminants.

Education

B.S. Geology, Southern Methodist University, Dallas, TX, 1984
M.S. Geology, University of Texas, Arlington, TX, 1988
Ph.D. Geology, The University of Texas at Austin, 1997

Soil-Gas Variability



YouTube

0:00 / 2:14

GCS IN THE NEWS

- Storing Carbon in Rocks May Help Fight Against Climate Change - BCI/mag.com
- IMPORTANT! Bing News RSS feed has moved!
- Private sector funding for CO₂ Capture - but Sequestration is another story - Gerson Lehman Group
- Environmentalists Renew Call to Reduce GHGs to 350 PPM - The Washington Independent.com
- New Report: Reducing Carbon Dioxide to 350 ppm Is Necessary to Avoid Climate Catastrophe - Common Dreams
- Chu Touts Clean Coal to West Virginians - The Heartland Institute
- ADA-EES Signs \$19MM Contract with DOE to Scale up clean coal technology - PennEnergy
- If Genetically Modified Trees Could Help Stop Climate Change Would You Support ... - Treehugger
- ADA-EES Signs \$19 Million Contract with DOE to Scale up Clean Coal Technology - PR Inside
- ADA-EES Signs \$19 Million Contract with DOE to Scale up Clean Coal Technology - MarketWatch (press release)
- Economics act against CCE retrofits - Oil & Gas Journal
- ConocoPhillips's Mulva: Natural gas a 'job-creation machine' - Oil & Gas Journal

more

HILARY OLSON

- Glossary
- My account
- Create content

Four Primary Initiatives

Sequestration

Initiative 1. **T**raining (Workforce Training)

Initiative 2. **O**utreach (Public Outreach)

Initiative 3. **R**esearch and Technology Transfer

Initiative 4. **E**ducation (Workforce Pipeline)

Two Approaches

Approach 1. Personal Interaction

Approach 2. Virtual Interaction

Recent Activities:

Outreach (Public Outreach)

Personal Interaction

- Explore UT:
What to do with CO₂?
 - March 6, 2010
(follow-up local schools)
 - March 5, 2011
 - More than 50,000 people in attendance
- *GirlTalk: Energy, Climate and Water in the 21st Century*
 - October 2, 2010 – Ursuline Academy, Dallas, TX
 - 200 community members, targeting middle school girls, their parents and teachers



Recent Activities:

Outreach (Public Outreach)

Virtual Interaction

- General Information at www.storeco2now.com
 - What is Geologic Carbon Sequestration (GCS)?
 - Upcoming: FAQs, Links to other sources, Spanish Content



STORE Training - Carbon Sequestration: Storage of CO₂ in Geologic Formations - October 10 in San Antonio

STORE sequestration training, outreach, research & education

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what is gcs? about STORE training outreach research education Cranfield

STORE is fostering the understanding required to advance the United States in its energy security and leadership position.

WHAT IS STORE?

The overall mission of our Alliance for Sequestration Training, Outreach, Research and Education (STORE) is to promote better understanding of CO₂ sequestration science and engineering technology.

Our efforts are helping to create a skilled workforce for the CCS industry, and fostering the public understanding required to advance the United States in its energy security and its leadership position with regard to climate change mitigation technology.

Effective transfer of knowledge and technology to the workforce will yield reduced costs, improved industry efficiency, increased CO₂ storage, accelerated implementation of CO₂ projects and enhanced environmental compliance for the nascent CCS industry. STORE is housed at the Gulf Coast Carbon Center at the University of Texas at Austin.

With initial funding from DOE/HQTL, STORE's scientists and engineers, affiliated technologists and communication specialists are focusing on four primary objectives aligned with the needs of the

Training Schedule

Upcoming **STORE** Training events (view all events):

October 10 (Sun), 2010
STORE Training: Carbon Sequestration: Storage of CO₂ in Geologic Formations
One-day short course on CO₂ Sequestration in association with Gulf Coast Association of Geological Societies Annual Meeting (Oct 10-12) in San Antonio, Texas
Short Course Description on GCS website
GCCS Convention website with registration link

November 9 (Tue) 2010
STORE Training: Storage of CO₂ in Geologic Formations
One-day short course on CO₂ Sequestration in association with SPE International Conference on CO₂ Capture Storage and Utilization (Nov 10-12), New Orleans, Louisiana
ADD NEW COMMENT → READ MORE →

Store - An Alliance for Sequestration Training, Outreach, Research, and Education

The overall mission of our Alliance for Sequestration Training, Outreach, Research and Education (STORE) is to promote better understanding of CO₂ sequestration science and engineering technology.

ADD NEW COMMENT → READ MORE →

Fighting Climate Change... by Pumping Oil?

Marc Althart, January 2009

Most people don't think of producing petroleum and fighting greenhouse gas emissions as compatible endeavors. But oil and gas operators in Texas have decades of experience in a practice that may be a first step in greenhouse gas reduction.

Reading Room

All the latest GCS articles, news & info.

Bookshelf

visit the Gulf Coast Carbon Center Publication Library

GIRL TALK

At Utsunomiya Academy - Dallas Texas
Click here for information & registration

Climate & Civilization - The Maya Example

At Utsunomiya Academy - Dallas Texas
Click here for information & registration

GCS IN THE NEWS

- Storing Carbon in Rocks May Help Fight Against Climate Change - ECI/mag.com
- IMPORTANT: Bing News RSS feed has moved!
- Private sector funding for CO₂ Capture - but Sequestration is another story - Gerson Lehman Group
- Environmentalists Renew Call

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Two Approaches

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Approach 2. Virtual Interaction

Recent Activities:

Research and Technology Transfer

Personal Interaction

- *American Association of Petroleum Geologists (AAPG) Annual Meeting, New Orleans, LA*
 - April 9-10, 2010 – Cranfield Field, Natchez, MS
 - Organized and Led Field Trip on EOR and Sequestration
 - 26 attendees, 312 CEU hrs (awarded by UT)



Recent Activities:

Research and Technology Transfer

Personal Interaction

- *International Energy Agency Greenhouse Gas Monitoring Network Meeting*
 - May 6-7, 2010 – Natchez Convention Center, Natchez, MS
 - Organizing Committee



Recent Activities:

Research and Technology Transfer

Personal Interaction

- *IEAGHG Monitoring Network Group Field Trip to Cranfield*
 - May 8, 2010 – Cranfield Field, Natchez, MS
 - Organized and Led Field Trip
 - 36 attendees, 288 CEU hrs (awarded by UT)



STORE
sequestration training, outreach, research & education



Recent Activities:

Research and Technology Transfer

Virtual Interaction

- STORE YouTube Station
www.youtube.com/storeco2now
- Cranfield on www.storeco2now.com
 - Shallow Monitoring at Cranfield
 - Video - Soil-Gas Variability
 - Deep Monitoring
 - UTube Page for Cranfield
 - Video - CO₂ Release at Cranfield
 - Video – Monitoring Tracers



Recent Activities:

Research and Technology Transfer

Virtual Interaction

- Reading Room
- Link to Gulf Coast Carbon Center Bookshelf, white papers and publications with searchable index



STORE Training - Carbon Sequestration: Storage of CO₂ in Geologic Formations - October 10 in San Antonio



sequestration training, outreach, research & education

Search



what is gcs?

about STORE

training

outreach

research

education

Cranfield



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Our efforts are helping to create a skilled workforce for the CCS industry, and fostering the public understanding of this technology.

Training Schedule

Upcoming **STORE** Training events ([view all events](#)):

October 10 (Sun), 2010

STORE Training: *Carbon Sequestration: Storage of CO₂ in Geologic Formations*

One-day short course on CO₂ Sequestration in association with Gulf Coast Association of Geological Societies Annual Meeting (Oct 10-12) in San Antonio, Texas

[Short Course Description](#) on GCAGS website

[GCAGS Convention website](#) with registration link

November 9 (Tue) 2010

Reading Room



All the latest GCS articles, news & info.

Bookshelf



visit the Gulf Coast Carbon Center Publication Library

Recent Activities:

Research and Technology Transfer

Virtual Interaction

- Reading Room on www.storeco2now.com
 - STORE Selection
 - Bryant and Olson, 2010, *Training carbon management engineers: Removing a major hurdle for geologic CO2 storage by increasing educational capacity*
 - Gulf Coast Carbon Center Selection
 - Hovorka and Tinker, 2010, *EOR as Sequestration: Geoscience Perspective*
 - GCS General Selection
 - *Overview and Summary of America's Energy Future: Technology and Transformation*
(National Academy of Sciences)

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Two Approaches

Approach 1. Personal Interaction

Approach 2. Virtual Interaction

Recent Activities: Education (Workforce Pipeline)

Personal Interaction

- *Science Symposium: Energy, Climate and Water in the 21st Century*
 - October 1, 2010, Ursuline Academy, Dallas, TX
 - 800 High School Girls, 88 Faculty



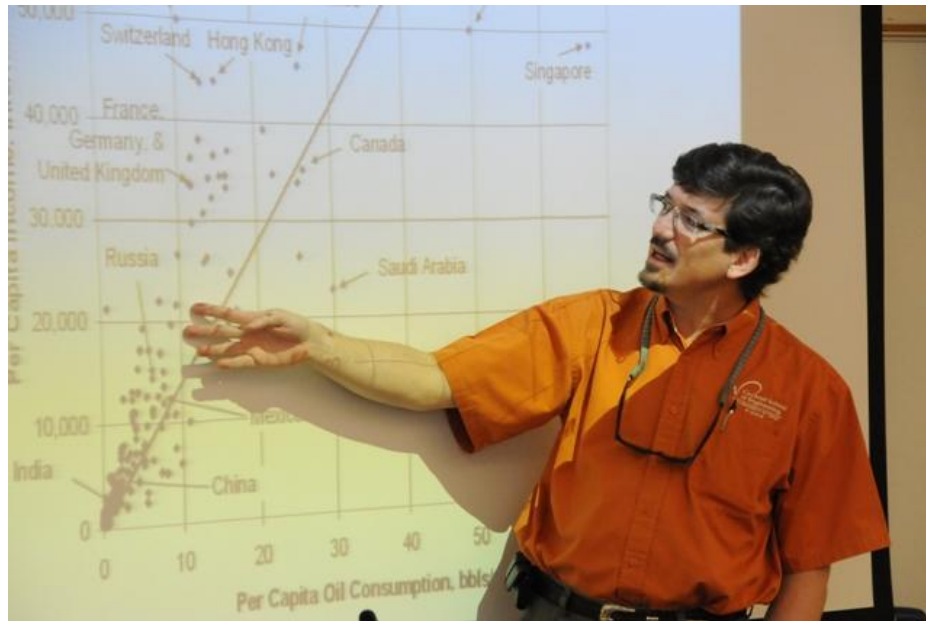
Recent Activities:

Education (Workforce Pipeline)



Recent Activities:

Education (Workforce Pipeline)



How many times would you have to lift this 10lb-sack of potatoes to do the work to heat up water for your fifty-minute teenager shower?

STORE
acquisition, training, outreach, research & education

Energy



Recent Activities: Education (Workforce Pipeline)



Recent Activities:

Education (Workforce Pipeline)



Water



Recent Activities:

Outreach (Public Outreach)

Personal Interaction

- *GirlTalk: Energy, Climate and Water in the 21st Century*
 - October 2, 2010 – Ursuline Academy, Dallas, TX
 - 200 community members, targeting middle school girls, their parents and teachers



Recent Activities:

Outreach (Public Outreach)



Recent Activities:

Education (Workforce Pipeline)

Personal Interaction

- New Course at The University of Texas at Austin:
Advances in CO₂ Injection and Storage in Geologic Formations
 - Fall Semester, 2010



Recent Activities:

Education (Workforce Pipeline)

Virtual Interaction

- GCS Student Profile
 - Nwachukwu "Tony" Anyamale, Temple University (background, photos, video on monitoring tracers)



In closing, we would be happy to collaborate with any of you on any of our four initiatives.



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